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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/977,231	10/16/2001	Noriaki Shirai	11-067	3649

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POSZ & BETHARDS, PLC
11250 ROGER BACON DRIVE
SUITE 10
RESTON, VA 20190

EXAMINER
SEVER, ANDREW T

ART UNIT	PAPER NUMBER
2851	

DATE MAILED: 06/20/2003

Please find below and/or attached an Office communication concerning this application or proceeding.

Office Action Summary	Application No.	Applicant(s)	
	09/977,231	SHIRAI ET AL.	
	Examiner	Art Unit	
	Andrew T Sever	2851	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

1)☐ Responsive to communication(s) filed on _____ .

2a)☐ This action is **FINAL**. 2b)☒ This action is non-final.

3)☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

4)☒ Claim(s) *1-10* is/are pending in the application.

4a) Of the above claim(s) _____ is/are withdrawn from consideration.

5)☐ Claim(s) _____ is/are allowed.

6)☒ Claim(s) *1-10* is/are rejected.

7)☐ Claim(s) _____ is/are objected to.

8)☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

9)☐ The specification is objected to by the Examiner.

10)☒ The drawing(s) filed on *16 October 2001* is/are: a)☐ accepted or b)☒ objected to by the Examiner.

Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).

11)☐ The proposed drawing correction filed on _____ is: a)☐ approved b)☐ disapproved by the Examiner.

If approved, corrected drawings are required in reply to this Office action.

12)☐ The oath or declaration is objected to by the Examiner.

Priority under 35 U.S.C. §§ 119 and 120

13)☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).

a)☒ All b)☐ Some * c)☐ None of:

1.☒ Certified copies of the priority documents have been received.

2.☐ Certified copies of the priority documents have been received in Application No. _____ .

3.☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

14)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).

a) ☐ The translation of the foreign language provisional application has been received.

15)☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

Attachment(s)

1) ☒ Notice of References Cited (PTO-892)
2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 3 .
4) ☐ Interview Summary (PTO-413) Paper No(s). _____ .
5) ☐ Notice of Informal Patent Application (PTO-152)
6) ☐ Other: .

DETAILED ACTION

Drawings

1. The drawings are objected to as failing to comply with 37 CFR 1.84(p)(5) because they do not include the following reference sign(s) mentioned in the description: 16A. **A proposed drawing correction or corrected drawings are required in reply to the Office action to avoid abandonment of the application. The objection to the drawings will not be held in abeyance.**

Page 13 line 10 refers to a part 16A which is described as a mirror in the scanner 16, however part 16's mirror is not labeled with a part 16A.

Claim Rejections - 35 USC § 103

2. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

> (a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negatived by the manner in which the invention was made.

3. Claims 1-4, 8-10 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi (US 6,452,665) in view of Ikebuchi (US 5,831,717.)

Kikuchi teaches in figure 2 and in column 5 lines 1-45, a distance measurement apparatus that comprises an electromagnetic wave generating means (1) for generating (11) and transmitting an electromagnetic wave. The device further includes scanning means (13) for periodically changing a direction in which the electromagnetic wave is transmitted from the electromagnetic wave generating means. A receiving means (3) is

provided for receiving an echo wave caused by reflection of the electromagnetic wave at an obstacle. A first driving means (12) is provided to repetitively drive the electromagnetic wave generating means a plurality of times per period of the change of the direction by the scanning means to repetitively generate and transmit a distance measurement electromagnetic wave. A first calculating means (27 and 28) measures a time interval between a moment of every generation and transmission of the distance measurement electromagnetic wave by the electromagnetic wave generating means in response to drive by the first driving means to a moment of reception of a corresponding echo wave by the receiving means and for calculating a distance to an obstacle on the basis of the measured time interval.

Kikuchi, however does no teach a second driving means that before the first driving means drives the electromagnetic wave generating means where the second driving means causes the electromagnetic wave generating means to generate and transmit a judgment electromagnetic wave having an energy smaller than that of the distance measurement electromagnetic wave. Ikebuchi teaches in column 4 line 50 through column 5 line 20 an obstacle detecting apparatus which uses an electromagnetic wave generating means for generating and transmitting an electromagnetic wave. The electromagnetic wave generating means has a second driving means (along with additional calculating means as is claimed by applicant's claim 8 and taught in column 3), which drives the electromagnetic wave generating means to generate and transmit a judgment wave having an energy smaller than the distance measurement wave as is claimed in applicant's claims 2 and 3. When an obstacle is detected the first driving

means is inhibited, or the power level is reduced appropriately. Ikebuchi teaches in column 3 lines 46-54 that this is done to prevent a person from receiving a high power of transmitted light on his or her face and from causing discomfort and an unsafe condition on passengers of adjacent vehicles. Therefore it would have been obvious to one of ordinary skill in the art at the time the invention was made to include Ikebuchi's judging means in Kikuchi's scanning object detecting system.

With regards to applicant's claims 9 and 10, Kikuchi in view of Ikebuchi specifically teach the use of single or plural lasers as the electromagnetic wave generating means and lasers as the electromagnetic waves. Although Kikuchi in view of Ikebuchi do not explicitly teach first through tenth means, these means are explicit and obvious in the apparatus described above and the method of using the apparatus above.

4. Claim 5-7 are rejected under 35 U.S.C. 103(a) as being unpatentable over Kikuchi in view of Ikebuchi as applied to claim1-4 and 8-10 above, and further in view of Nagazumi (US 6,381,261.)

As described in more detail above, Kikuchi in view of Ikebuchi teaches a distance measurement apparatus which includes an electromagnetic wave generating means for generating and transmitting an electromagnetic wave, scanning means, receiving means, and first and second driving means for driving the electromagnetic wave generating means. The second driving means before the first driving mans drives the electromagnetic wave generating means to generate an electromagnetic wave at a lower power then the first electromagnetic wave generating means. Kikuchi in view of

Ikebuchi however does not teach specifically that the generating means generate the electromagnetic waves in the form of pulses.

Nagazumi teaches in column 2 that in an radar (a type of distance measurement apparatus using an electromagnetic wave generating means), that in order to reduce transmission peak power it is useful to transmit with pulses, specifically a pseudo noise code as is claimed in applicant's claim 7 (see Nagazumi's claim 3 and column 1 lines 5459 as well as column 2 lines 1-30). Since as taught by Ikebuchi it is useful to reduce the power of the electromagnetic wave generated in order not to harm humans in the vicinity of the wave being generated and Nagazumi teaches that by using pulses especially pseudo noise codes its possible to greatly reduce the power level, it would have been obvious to one of ordinary skill in the art at the time the invention was made to modify Kikuchi in view of Ikebuchi to use pulse as taught by Nagazumi.

Conclusion

5. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

US patent 5,336,899 to Nettleton et al. teaches a rangefinder which has manual adjustments for adjusting the laser brightness among other things in figure 3

US 5,699,149 to Kuroda et al. teaches in column 1 line 57 through column 2 line 22 a means for measuring a distance where an image is captured and then a target object's distance is measured by a laser based distance measuring device.

US 6,057,910 to Dunne teaches in column 2 a laser range finder which utilizes more then one voltage for powering the laser depending on the needs of the measurement.

US 5,724,141 to Nishino in column 4 lines 51-56 teaches that the light emitting device is quadratically changed so as to preserve it life.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to Andrew T Sever whose telephone number is 703-305-4036. The examiner can normally be reached M-F 8:30-5:00.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Russell Adams can be reached at 703-308-2847. The fax phone numbers for the organization where this application or proceeding is assigned are 703-872-9318 for regular communications and 703-872-9319 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is 703-308-0956.

AS
June 11, 2003

RUSSELL ADAMS
SUPERVISORY PATENT EXAMINER
TECHNOLOGY CENTER 2800